INDEX

Abnormality, specific (Dunn and Glucksohn-Schoenheimer), 173.
Activity (Wald and Jackson), 255.
Adaptive enzymes (Lindegren, Spiegelman and Lindegren), 346.
Alleles, oppositional (Atwood), 69.
ALBERT, A. A. The Minimum Rank of a Correlation Matrix, 144.
——. The Matrices of Factor Analysis, 90.
Analysis, rational diophantine (Bell), 355.
ANDERSON, E. H. Incidence of Metabolic Changes among Virus-Resistant Mutants of a Bacterial Strain, 396.
Antibiotic activity of lichens (Burkholder, Evans, McVeigh and Thornton), 250.
Antibiotic substances (Waksman and Reilly), 99.
Antibodies (Emerson), 179.
Apomixis in guayule (Esau), 352.
Arithmetic in a group ring (Brauer), 109.
Associations, chromosome (Bergner), 302.
ATWOOD, S. S. The Behavior of Oppositional Alleles in Polyploids of *Trifolium repens*, 69.
Automorphism groups (Chevalley), 274.

Bacteria (Gray and Tatum), 403.
Bacterial strains (Anderson), 396.
BALL, E., AND BOELL, E. J. Respiratory Rates of the Shoot Tips and Maturing Tissues in *Lupinus albus* and *Tropaeolum majus*, 45.
BALLENTINE, R. See McElroy, W. D., 377.
BARAJAS, A. Birkhoff's Theory of Gravitation and Einstein's Theory for Weak Fields, 54.
BARKER, H. A. On the Rôle of Carbon Dioxide in the Metabolism of *Clostridium thermoaceticum*, 88.
BATEMAN, H. Note on the Function $F(a, b; c - n; z)$, 28.
BELL, E. T. A Method in Rational Diophantine Analysis, 355.
BERGNER, A. D. Chromosome Associations in Tetraploid Hybrids between Prime Type 1 and Prime Type 2 in *Datura stramonium*, 302.
Biological effects of X-rays (Bless), 118.
Bioluminescence, mechanics of (McElroy and Ballentine), 377.
Biosynthesis of tryptophane (Tatum and Bonner), 30.
BIRKHOFF, G. D. Flat Space-Time and Gravitation, 324.
Birkhoff's theory of gravitation (Barajas), 54; (Weyl), 205.
BLESS, A. A. The Biological Effects of X-Rays as a Function of Intensity, 118.
BLOCH, R. See Sinnott, E. W., 387.
Blood types (Sawin, Griffith and Stuart), 217.
BOELL, E. J. See Ball, E., 45.
BONNER, D. See Tatum, E. L., 30.
Brachy (T/T) (Gluecksohn - Schoenheimer), 134.
BRADLEY, M. See Marshak, A., 231.
BRAUER, R. On the Arithmetic in a Group Ring, 109.
Bundles, Sphere (Chern), 269.
BURKHOLDER, P. R., EVANS, A. W., MCVEIGH, I., AND THORNTON, H. K. Antibiotic Activity of Lichens, 250.

Carbon dioxide (Barker), 88.
Cartography, general (Kasner and DeCicco), 211.
CASTLE, W. E. Linkage of Waltzing in the Rat, 226.
CASTLE, W. E., AND KING, H. D. Linkage Studies of the Rat (*Rattus Norvegicus*) IV, 79.
Characterization, group-theoretic (Mendelsohn), 279.
Characters of groups and semi-groups (Hille), 58.
CHERN, S. Laplace Transforms of a Class of Higher Dimensional Varieties in a Projective Space of n Dimensions, 95.
——. Integral Formulas for the Characteristic Classes of Sphere Bundles, 269.
CHEVALLEY, C. On Groups of Automorphisms of Lie Groups, 274.
Chiasmata, reciprocal (Cooper), 50.
Chick (Gluecksohn-Schoenheimer), 134.
Chromosome associations (Bergner), 302.
Chromosome number (Marshak and Bradley), 231.
Chromosome, sex (Cooper), 50.
Chromosomes (Sparrow), 147; (MacKnight & Cooper), 384.
Chrysogenum group (Waksman and Reilly), 99.
Clostridium thermoaceticum (Barker), 88.
Clusters, globular (Shapley), 61.
Coelom of the chick (Gluecksohn-Schoenheimer), 134.
Collineation, projective (Mendelsohn), 279.
Compressibility of media (Murnaghan), 244.
Conformal maps (Kasner and DeCicco), 162.
Congruences, trinomial (Vandiver), 368.
COOPER, K. W. Invalidation of the Cytological Evidence for Reciprocal Chiasmata in the Sex Chromosome Bivalent of Male Drosophila, 50.

COOPER, K. W. See MacKnight, R. H., 384.
Correlation matrix (Albert), 144; (Thurstone), 129.
Curve, Soper's epidemic (Wilson and Worcester), 37.
Curves, scale (Kasner and DeCicco), 162, 211.
Cylinder, elastic (Murnaghan), 382.
Cytoplasmic pattern (Sinnott and Bloch), 387.

Datura stramonium (Bergner), 302.
DECICCO, J. See Kasner, E., 162, 211.
Degenerate form of Einstein's theory (Weyl), 205.
Deprivation, nutritional (Wald and Jackson), 255.
Development of the eye (Steinberg), 5.
Differentiation of xylem strands (Sinnott and Bloch), 387.
Diophantine analysis (Bell), 355.
Displacements, elastic (Thomas), 140.
Distances of globular clusters (Shapley), 61.
Distortion tensor (Thomas), 140.
DOBZHANSKY, T., AND MAYR, E. Experiments on Sexual Isolation in Drosophila. I. Geographic Strains of *Drosophila willistoni*, 238.
DOBZHANSKY, T., AND STREISINGER, G. Experiments on Sexurl Isolation in Drosophila. II. Geographic Strains of *Drosophila prosaltans*, 340.
——. Experiments on Sexual Isolation in Drosophila. III. Geographic Strains of *Drosophila sturtevanti*, 335.
Dominant mutation in Maize (Stadler), 123.
Drosophila (Dobzhansky and Streisinger), 340; (Dobzhansky), 335.
Drosophila, male (Cooper), 50.
Drosophila melanogaster (Steinberg), 5.
Drosophila miranda (MacKnight and Cooper), 384.
Drosophila prosaltans (Dobzhansky and Streisinger), 340.
Drosophila, sexual isolation in (Dobzhansky and Mayr), 238.
Drosophila willistoni (Dobzhansky and Mayr), 238.
DUNN, L. C., AND GLUECKSOHN-SCHOENHEIMER, S. A Specific Abnormality Associated with a Variety of Genotypes, 173.
Dynamical systems (Ingram), 370.

Einstein's theory of gravitation (Barajas), 54; (Weyl), 205.
Elastic cylinder (Murnaghan), 382.
Elastic displacements (Thomas), 140.
Embryos, mouse (Gluecksohn-Schoenheimer), 134.
EMERSON, S. The Induction of Mutations by Antibodies, 179.
Enzymatic adaptation (Spiegelman, Lindegren and Hedgecock), 13.
Enzymes, adaptive (Lindegren, Spiegelman and Lindegren), 346.
EPHRUSSI, B., AND SUTTON, E. A Reconsideration of the Mechanism of Position Effect, 183.
Epidemic curve (Wilson and Worcester), 37, 264.
Equations, integral (Ingram), 370.
Equilibrium in genic materials (Jones), 82.
Errata (G. W. Mackey) and (H. S. Uhler), 24; (Bateman), 44
ESAU, K. Apomixis in Guayule, 352.
EVANS, A. W. See Burkholder, P. R., 250.
Extragalactic studies (Shapley), 61.
Eye, development of (Steinberg), 5.
Eyeless mutants (Steinberg), 5.

Factor analysis, matrices of (Albert), 90.
Factoring correlation matrix (Thurstone), 129.
FALCO, E. A. See Hitchings, G. H., 294.
Fermat's last theorem (Vandiver), 362, 368.
Ferns, common (King), 155.
Field theory (Vandiver), 362.
Fields, weak (Barajas), 54.
Finite field theory (Vandiver), 362.
Fishes, production of guanine and vision in (Sumner), 285.
Flat space-time (Birkhoff), 324.
Flows, parallel (Lin), 316.
Function $F(a, b; c - n; z)$ (Bateman), 28.

Galactic studies (Shapley), 61.
Gasteria, pericentric inversion in (Giles), 1.
General ransform (Reed), 169.
Genes, normal and mutant (Stern and Heidenthal), 197.
Genetic linkage of blood types (Sawin, Griffith and Stuart), 217.
Genetically controlled yeast populations (Spiegelman, Lindegren and Hedgecock), 13.
Genic materials (Jones), 82.
Genotypes, variety of (Dunn and Gluecksohn-Schoenheimer), 173.
Geographic strains of *Drosophila prosaltans* and *sturtevanti* (Dobzhansky and Streisinger), 340; (Dobzhansky), 335.
Geographic strains of *Drosophila willistoni* (Dobzhansky and Mayr), 238.
GILES, N. H., JR. A Pericentric Inversion in Gasteria Resulting in Apparent Iso-Chromosomes at Meiosis, 1
Girella nigricans extract (Hitchings and Falco), 294.
Globular clusters (Shapley), 61.

GLUECKSOHN-SCHOENHEIMER, S. The Development of Normal and Homozygous Brachy (T/T) Mouse Embryos in the Extraembryonic Coelom of the Chick, 134.
GLUECKSOHN-SCHOENHEIMER, S. See Dunn, L. C., 173.
GOLDSCHMIDT, R. On Spontaneous Mutation, 297.
GOLDSCHMIDT, R., AND HANNAH, A. One-Band Inversion, 299.
Gravitation (Barajas), 54; (Weyl), 205; (Birkhoff), 324.
GRAY, C. H., AND TATUM, E. L. X-Ray Induced Growth Factor Requirements in Bacteria, 403.
GRIFFITH, M. A. See Sawin, P. B., 217.
Group ring (Brauer), 109.
Groups (Miller), 25; (Hille), 58; (Miller), 114; (Chevalley), 274; (Miller), 275; (Mendelsohn), 279; (Miller), 359.
Group-theoretic characterizations (Mendelsohn), 279.
Growth-delaying effect of ultraviolet radiation (Luria), 392.
Growth factors (Gray and Tatum), 403.
Guanase, specificity of (Hitchings and Falco), 294.
Guanine (Sumner), 285; (Hitchings and Falco), 294
Guayule, apomixis in (Esau), 352.

HANNAH, A. See Goldschmidt, R., 299.
HARO, G. Note on the Discovery of Red Stars, 247.
HEDGECOCK, L. See Spiegelman, S., 13.
HEIDENTHAL, G. See Stern, C., 197.
HILLE, E. On the Theory of Characters of Groups and Semi-Groups in Normed Vector Rings, 58.
HITCHINGS, G. H., AND FALCO, E. A. The Identification of Guanine in Extracts of *Girella nigricans*. The Specificity of Guanase, 294.
Hybrids, tetraploid (Bergner), 302.

Indole (Tatum and Bonner), 30.
Induction of mutations by antibodies (Emerson), 179.
INGRAM, W. H. On the Integral Equations of Continuous Dynamical Systems, 370.
Inheritance, Mendelian (Lindegren, Spiegelman and Lindegren), 346.
Inhibition, X-ray (Marshak and Bradley), 231.
Integral equations (Ingram), 370.
Integral formulas (Chern), 269.
Intensity of X-rays (Bless), 118.
Inversion, one-band (Goldschmidt and Hannah), 297.
Inversion, pericentric (Giles), 1.
Iso-chromosomes (Giles), 1.
Isolation, sexual (Dobzhansky and Streisinger), 340; (Dobzhansky), 335.

JACKSON, B. See Wald, G., 255.
JONES, D. F. Equilibrium in Genic Materials, 82.

KASNER, E., AND DECICCO, J. Scale Curves in Conformal Maps, 162.
——. Scale Curves in General Cartography, 211.
KING, A. L. The Spore Discharge Mechanism of Common Ferns, 155.
KING, H. D. See Castle, W. E., 79.

Laplace transforms (Chern), 95.
Lebesgue space (Segal), 165.
Lichens, antibiotic activity of (Burkholder, Evans, McVeigh and Thornton), 250.
Lie groups (Chevalley), 274.
LIN, C. C. On the Stability of Two-Dimensional Parallel Flows, 316.
LINDEGREN, C. C. See Spiegelman, S., 13.
LINDEGREN, C. C., SPIEGELMAN, S., AND LINDEGREN, G. Mendelian Inheritance of Adaptive Enzymes, 346.
LINDEGREN, G. See Lindegren, C. C., 346.
Linkage, genetic (Sawin, Griffith and Stuart), 217.
Linkage of waltzing in rats (Whittinghill), 221; (Castle), 226.
Linkage studies (Castle and King), 79.
Lobe^2, lobe^4, lobe^5 (Steinberg), 5.
Lupinus albus (Ball and Boell), 45.
LURIA, E. E. A Growth-Delaying Effect of Ultraviolet Radiation, 392.

MACKEY, G. W., errata, 24.
MCELROY, W. D., AND BALLENTINE, R. The Mechanics of Bioluminescence, 377.
MACKNIGHT, R. H., AND COOPER, K. W. The Synapsis of the Sex Chromosomes of *Drosophila miranda* in Relation to Their Directed Segregation, 384.
MCVEIGH, I. See Burkholder, P. R., 250.
Maize, dominant mutation in (Stadler), 123.
Male Drosophila (Cooper), 50.
Maps, conformal (Kasner and DeCicco), 162.
MARSHAK, A., AND BRADLEY, M. X-Ray Inhibition of Mitosis in Relation to Chromosome Number, 231.
Matrix, correlation (Thurstone), 129; (Albert), 144.
Maturing tissues (Ball and Boell), 45.
MAYR, E. See Dobzhansky, T., 238.
Mechanical self-excited oscillations (Minorsky), 308.

Mechanics of bioluminescence (McElroy and Ballentine), 377.
Mechanism of enzymatic adaptation (Spiegelman, Lindegren and Hedgecock), 13.
Mechanism of position effect (Ephrussi and Sutton), 183.
Media (Murnaghan), 244.
Meiosis (Giles), 1.
Meiotic chromosomes (Sparrow), 147.
Mendelian inheritance (Lindegren, Spiegelman and Lindegren), 346.
MENDELSOHN, N. S. A Group-Theoretic Characterization of the General Projective Collineation group, 379.
Mersenne number M_{127} (Uhler), 314.
Metabolic changes (Anderson), 396.
Metabolism of *Clostridium thermoacetlcum* (Barker), 88.
Matrices of factor analysis (Albert), 90.
MILLER, G. A. Relative Numbers of Non-Invariant Operators in a Group, 25.
——. Possible Numbers of Non-Invariant Operators of a Group, 114.
——. Groups Containing Less than Twenty-Eight Non-Invariant Operators, 275.
——. Groups Involving a Small Number of Sets of Conjugate Operators, 359.
Minimum rank of correlation matrix (Albert), 144.
MINORSKY, N. On Mechanical Self-Excited Oscillations, 308.
Mitosis (Marshak and Bradley), 231.
Mouse embryos (Gluecksohn-Schoenheimer), 134.
MURNAGHAN, F. D. The Compressibility of Media under Extreme Pressures, 244.
——. On the Theory of the Tension of an Elastic Cylinder, 382.
Mutant genes (Stern and Heidenthal), 197.
Mutants, eyeless (Steinberg), 5.
Mutants, virus-resistant (Anderson), 396.
Mutation, spontaneous (Goldschmidt), 297.
Mutations (Emerson), 179.
Mutations, specific (Sturtevant), 176.

Non-invariant operators (Miller), 25, 114, 275.
Normal genes (Stern and Heidenthal), 197.
Normed vector rings (Hille), 58.
Nucleic acid cycle (Sparrow), 147.
Number, Mersenne M_{127} (Uhler), 314.
Nutritional deprivation (Wald and Jackson), 255.

One-band inversion (Goldschmidt and Hannah), 297.
Operators, conjugate (Miller), 359.
Operators, non-invariant (Miller), 25, 114, 275.
Oscillations, mechanical self-excited (Minorsky), 308.

Parallel flows (Lin), 316.
Penicillium notatum (Waksman and Reilly), 99.
Pericentric inversion (Giles), 1.
Permutable periodic transformations (Smith), 105.
Polyploids (Atwood), 69.
Populations, yeast (Spiegelman, Lindegren and Hedgecock), 13.
Position effect (Ephrussi and Sutton), 183; (Stern and Heidenthal), 197.
Projective collineation group (Mendelsohn), 279.
Projective space of n dimensions (Chern), 95.

Rabbit (Sawin, Griffith and Stuart), 217.
Radiation, ultraviolet (Luria), 392.
Rat (Castle and King), 79.
Rational diophantine analysis (Bell), 355.
Rats, waltzing in (Whittinghill), 221; (Castle), 226.
Rattus Norvegicus (Castle and King), 79.
Reciprocal chiasmata (Cooper), 50.
Red stars (Haro), 247.
REED, I. S. On the Solution of a General Transform, 169.
REILLY, H. C. See Waksman, S. A., 99.
Respiratory rates (Ball and Boell), 45.
Ring, group (Brauer), 109.
Rings, normed vector (Hille), 58.

SAWIN, P. B., GRIFFITH, M. A., AND STUART, C. A. Genetic Linkage of Blood Types in the Rabbit, 217.
Scale curves (Kasner and DeCicco), 162, 211.
SEGAL, I. E. The Span of the Translations of a Function in a Lebesgue Space, 165.
Segregation, directed (MacKnight and Cooper), 384.
Semi-groups (Hille), 58.
Serine (Tatum and Bonner), 30.
Serological methods (Sturtevant), 176.
Sets of conjugate operators (Miller), 359.
Sex chromosome (Cooper), 50.
Sex chromosomes of *Drosophila miranda* (MacKnight and Cooper), 384.
Sexual isolation in Drosophila (Dobzhansky and Mayr), 238; (Dobzhansky and Streisinger), 340; (Dobzhansky), 335.
SHAPLEY, H. Galactic and Extragalactic Studies, XVII. Revision of the

Distances of Thirty High-Latitude Globular Clusters, 61.
Shoot tips (Ball and Boell), 45.
SMITH, P. A. Permutable Periodic Transformations, 105.
SINNOTT, E. W., AND BLOCH, R. Visible Expression of Cytoplasmic Pattern in the Differentiation of Xylem Strands, 387.
Soper's epidemic curve (Wilson and Worcester), 37, 264.
Space, Lebesgue (Segal), 165.
Space, projective (Chern), 95.
Space-time (Birkhoff), 324.
SPARROW, A. H. X-Ray Sensitivity Changes in Meiotic Chromosomes and the Nucleic Acid Cycle, 147.
Specific abnormality (Dunn and Glucksohn-Schoenheimer), 173.
Specific mutations (Sturtevant), 176.
Specificity of Guanase (Hitchings and Falco), 294.
Specificity, strain (Waksman and Reilly), 99.
Sphere bundles (Chern), 269.
SPIEGELMAN, S., LINDEGREN, C. C., AND HEDGECOCK, L. Mechanism of Enzymatic Adaptation in Genetically Controlled Yeast Populations, 13.
SPIEGELMAN, S. See Lindegren, C. C., 346.
Spontaneous mutation (Goldschmidt), 297.
Spore discharge mechanism of common ferns (King), 155.
Stability of two-dimensional parallel flows (Lin), 316.
STADLER, L. J. The Effect of X-Rays upon Dominant Mutation in Maize, 123.
Stars, red (Haro), 247.
STEINBERG, A. G. Studies on the Development of the Eye: Evidence that the Lobe^3, Lobe^4, Lobe^5 and Eyeless^2 Mutants of *Drosophila melanogaster* Develop in a Manner Similar to Bar, 5.
STERN, C., AND HEIDENTHAL, G. Materials for the Study of the Position Effect of Normal and Mutant Genes, 197.
Strain specificity (Waksman and Reilly), 99.
Strands, Xylem (Sinnott and Bloch), 387.
STUART, C. A. See Sawin, P. B., 217.
STURTEVANT, A. H. Can Specific Mutations Be Induced by Serological Methods?, 176.
SUMNER, F. B. Vision and Guanine Production in Fishes, 285.
Susceptibles, no accession of (Wilson and Worcester), 264.
SUTTON, E. See Ephrussi, B., 183.
Synapsis of sex chromosomes of *Drosophila miranda* (MacKnight and Cooper), 384.
Systems, continuous dynamic (Ingram), 370.

TATUM, E. L., AND BONNER, D. Indole and Serine in the Biosynthesis and Breakdown of Tryptophane, 30.
TATUM, E. L. See Gray, C. H., 403.
Tension of an elastic cylinder (Murnaghan), 382.
Tensor, distortion (Thomas), 140.
Tetraploid hybrids (Bergner), 302.
THOMAS, T. Y. Remark on a Distortion Tensor for Elastic Displacements, 140.
THORNTON, H. K. See Burkholder, P. R., 250.
THURSTONE, L. L. Graphical Method of Factoring the Correlation Matrix, 129.
Tissues, maturing (Ball and Boell), 45.
Transform, general (Reed), 169.
Transforms, Laplace (Chern), 95.
Translations, span of (Segal), 165.
Transformations, permutable periodic (Smith), 105.
Trifolium repens (Atwood), 69.
Trinomial congruences (Vandiver), 368.
Tropaeolum majus (Ball and Boell), 45.
Tryptophane, breakdown of (Tatum and Bonner), 30.

UHLER, H. S. First Proof that the Mersenne Number M_{187} is Composite, 314.
——. Errata, 24.
Ultraviolet radiation (Luria), 392.

VANDIVER, H. S. Some Theorems in Finite Field Theory with Applications to Fermat's Last Theorem, 362.
——. On Trinomial Congruences and Fermat's Last Theorem, 368.
Varieties, higher dimensional (Chern), 95.
Virus-resistant mutants (Anderson), 396.
Vision (Sumner), 285.

WALD, G., AND JACKSON, B. Activity and Nutritional Deprivation, 255.
Waltzing in rats (Whittinghill), 221; (Castle), 226.
WAKSMAN, S. A., AND REILLY, H. C. Strain Specificity and Production of Antibiotic Substances, III. *Penicillium notatum*-Chrysogenum Group, 99.
WEYL, H. Comparsion of a Degenerate Form of Einstein's with Birkhoff's Theory of Gravitation, 205.

WHITTINGHILL, M. Concerning Linkage of Waltzing in Rats, 221.
WILSON, E. B., AND WORCESTER, J. A Second Approximation to Soper's Epidemic Curve, 37.
——. The Epidemic Curve with no Accession of Susceptibles, 264.
WORCESTER, J. See Wilson, E. B., 37, 264.
X-ray inhibition (Marshak and Bradley), 231.
X-rays (Bless), 118; (Stadler), 123; (Sparrow), 147; (Gray and Tatum), 403.
Xylem strands (Sinnott and Bloch), 387;
Yeast populations (Spiegelman, Lindegren and Hedgecock), 13.